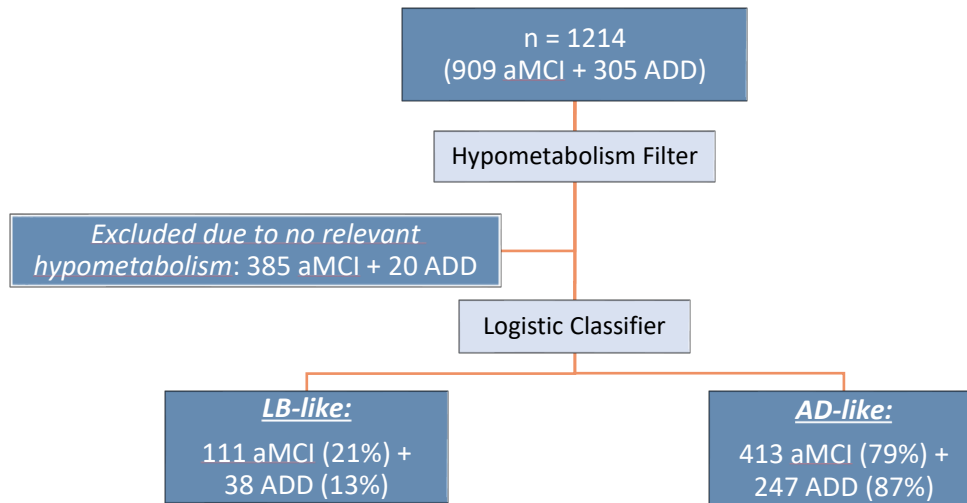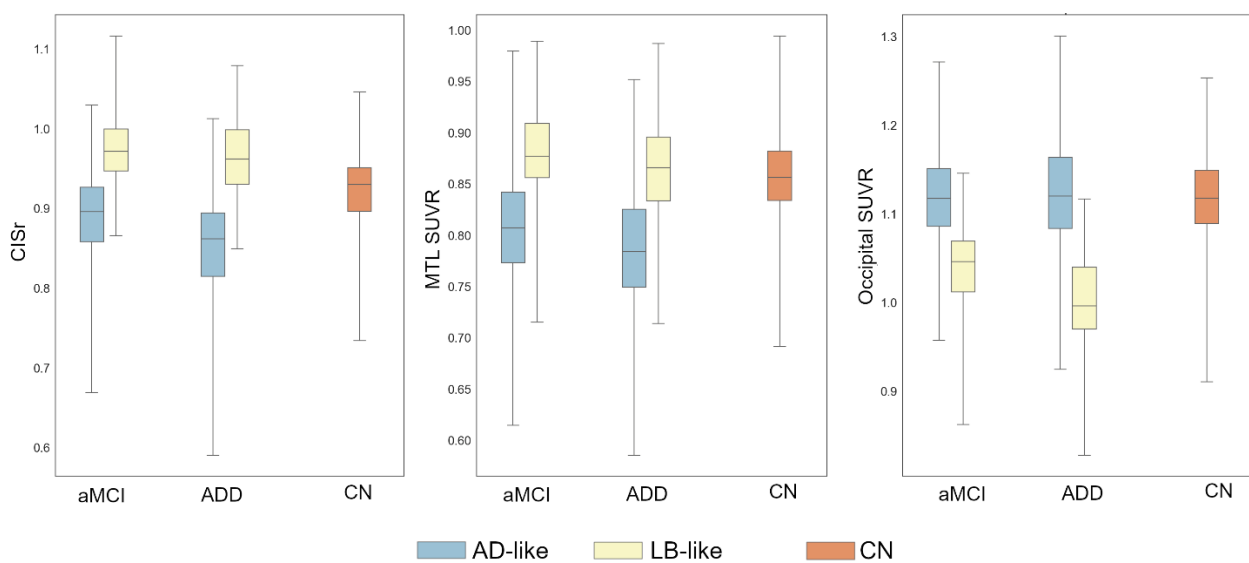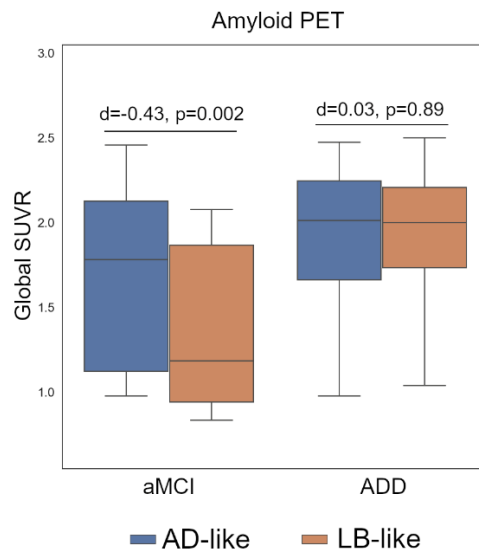# Supplementary Figures

Supplementary Figure S1: Outline of the classification process of the in-vivo cohort.
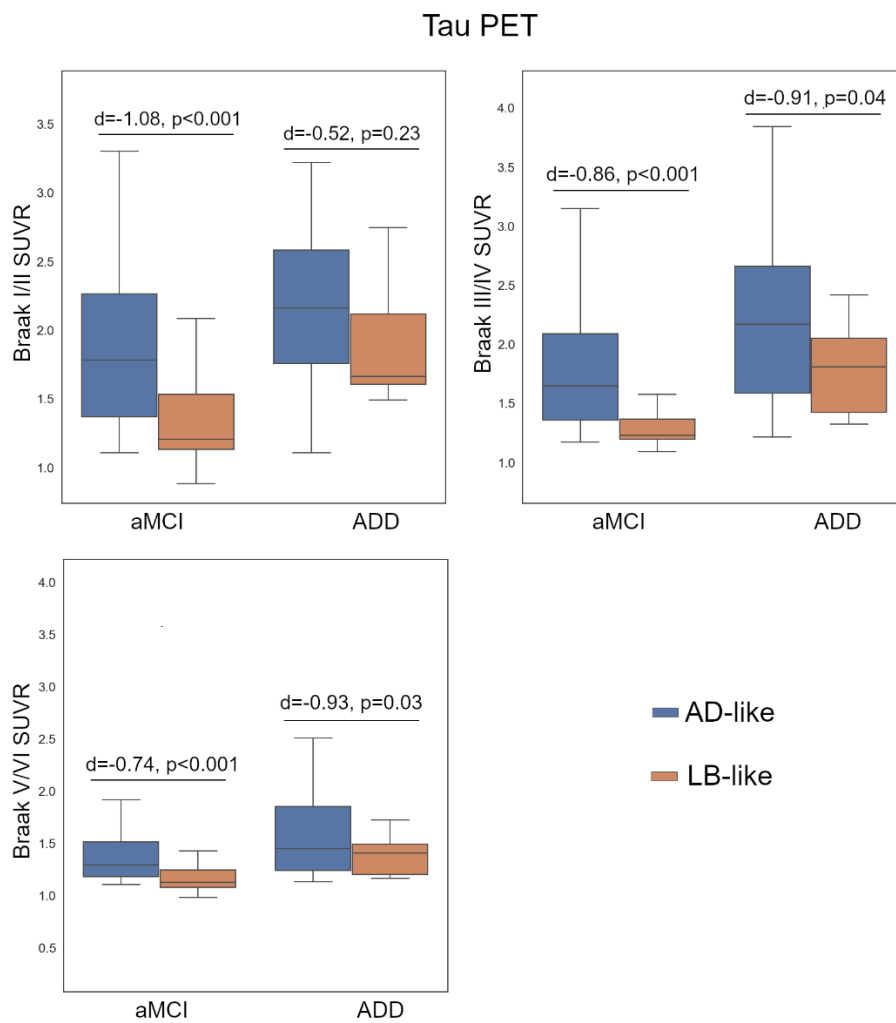

Supplementary Figure S2: CISr, MTL SUVR and Occipital SUVR measurements from the different groups. The obtained measurements are compared with measurements from 179 cognitively normal (CN) subjects from the ADNI cohort.
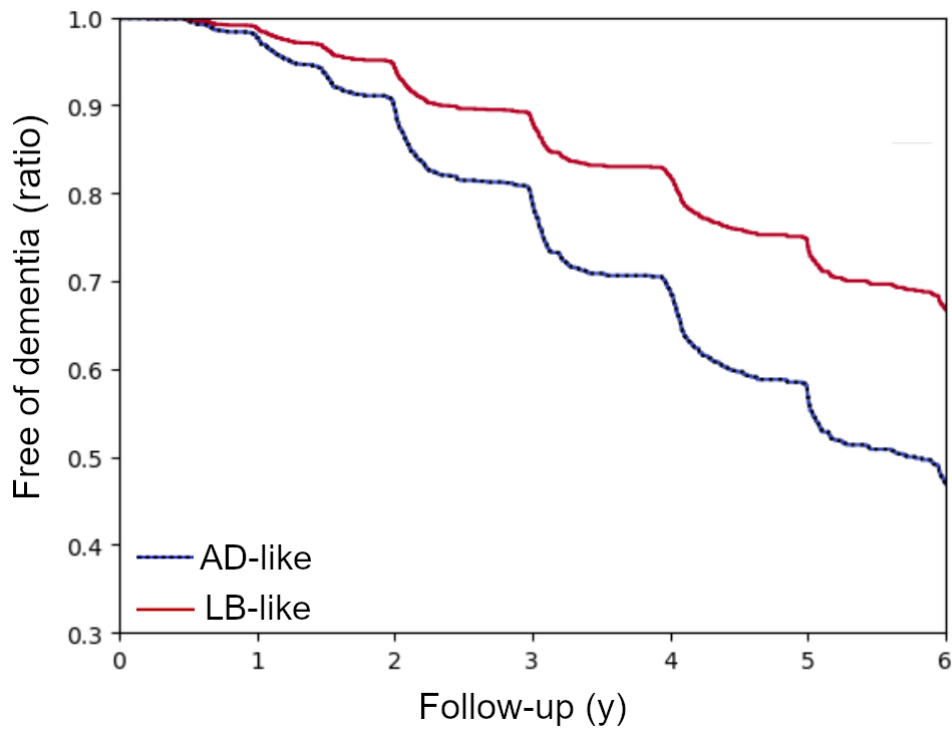
Supplementary Figure S3: Global SUVR values of Aβ PET images.

Supplementary Figure S4: SUVR values for the different Braak VOIs in tau PET.

Supplementary Figure S5: Proportion of AD-like (blue line) and LB-like (red line) patients remaining in the aMCI diagnosis group without progressing to dementia according to the fitted Cox proportional hazard models.

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Supplementary Tables

Supplementary Table S1: Regions of Interest (ROIs) from the Harvard-Oxford atlas included in each of the composite regions used to calculate CISr, Occipital SUVR and MTL SUVR. Bilateral ROIs were combined in all cases.

Composite Region	Atlas ROIs
Cingulate Cortex	Cingulate Gyrus posterior division
Precuneus + Cuneus	Precuneus Cortex, Cuneal Cortex
Occipital Cortex	Intracalcarine Cortex Cuneal Cortex Lingual Gyrus Supracalcarine Cortex Occipital Pole
Medial Temporal Lobe	Parahippocampal Gyrus anterior division Parahippocampal Gyrus posterior division Hippocampus Amygdala

Supplementary Table S2: Regions of Interests (ROIs) from the Harvard-Oxford atlas used for filtering regional hypometabolism relevant for AD or DLB. Patients presenting hypometabolism in any of the ROIs passed the applied filtering. Bilateral ROIs were combined in all cases.

Disease	ROIs
AD	Precuneus Cortex
	Cingulate Gyrus posterior division
	Parahippocampal Gyrus anterior division
	Parahippocampal Gyrus posterior division
	Hippocampus
	Amygdala
	Inferior Temporal Gyrus anterior division
	Inferior Temporal Gyrus posterior division
	Inferior Temporal Gyrus temporooccipital part
	Middle Temporal Gyrus posterior division
	Middle Temporal Gyrus temporooccipital part
	Supramarginal Gyrus anterior division
	Supramarginal Gyrus posterior division
	Angular Gyrus
DLB	Intracalcarine Cortex
	Supracalcarine Cortex
	Lingual Gyrus
	Occipital Pole
	Cuneal Cortex

Supplementary Table S3: Regions of Interest (ROIs) from the Desikan atlas used for creating the global cortical composite ROI for global SUVR measurement in Aβ-PET.

Global SUVR	Desikan ROIs
Frontal regions	Caudal middle frontal Lateral orbitofrontal Medial orbitofrontal Pars opercularis Pars orbitalis Pars triangularis Rostral middle frontal Superior frontal Frontal pole
Anterior/posterior cingulate regions	Caudal anterior cingulate Isthmus cingulate Posterior cingulate Rostral anterior cingulate Caudal anterior cingulate Isthmus cingulate Posterior cingulate Rostral anterior cingulate
Lateral parietal regions	Inferior parietal Precuneus Superior parietal Supramarginal
Lateral temporal regions	Inferior temporal Middle temporal Superior temporal

Supplementary Table S4: Regions of Interest (ROIs) from the Desikan atlas used for creating the composite Braak ROIs.

Braak Area Composite	Desikan ROIs
Braak I/II	Entorhinal
Braak III/IV	Parahippocampal Fusiform Amygdala Middle Temporal Inferior Temporal
Braak V/VI	Lingual Caudal Anterior Cingulate Rostral Anterior Cingulate Posterior Cingulate Isthmus of Cingulate Gyrus Insula Temporal Pole Frontal Association Cortex SUPFR Frontal Association Cortex FPORB Frontal Association Cortex MIDFR Frontal Association Cortex PARSFR Lateral Occipital Parietal Supramarginal Parietal Inferior Superior Temporal Parietal Superior Precuneus Tranv Temp Pericalcarine Postcentral Cuneus Precentral Paracentral

Supplementary Table S5: Demographical and clinical data for subjects excluded by the z ≤ -1.5 hypometabolism filter and comparison with included subjects.

	aMCI		ADD	
	Excluded (n=385)	vs. Included	Excluded (n=20)	vs. Included
Age, y	70.8 ± 7.7	**p<0.001** [*]	72.2 ± 7.7	d=-0.37 p=0.11
Male/Female (%)	54/46	p= 0.13	50/50	p= 0.48
Education, y	16.1 ± 2.7	d=0 p=0.88	14.8 ± 3.7	d=0.23 p=0.31
APOE ε4, --/+-/++, (%)	54/36/10	**p= 0.01** [*]	25/50/25	p=0.62
MMSE	28.2 ± 1.6	**d=0.42 p<0.001** [*]	28.0 ± 1.8	**d=2.35 p<0.001** [*]
ADNI-MEM	0.5 ± 0.6	**d=0.55 p<0.001** [*]	0.4 ± 0.6	**d=2.33 p<0.001** [*]
ADNI-EF	0.5 ± 0.8	**d=-0.48 p<0.001** [*]	0.53 ± 0.81	**d=1.61 p<0.001** [*]
Δ(MEM-EF)	0.0 ± 1.1	d=0.07 p=0.32	-0.03 ± 1.08	d=0.14, p=0.16